USER MANUAL

WIDE AREA IP 2WAY RADIO
MODEL: TA-680

ToooAir

Contents

READ ALL INSTRUCTIONS carefully and completely before operating your radio and retain this manual for future reference.

NEVER connect the radio to a power source other than the supplied battery and charge via supplied charger.
DO NOT place your radio in front of a vehicle airbag.
*DO NOT attempt to modify your radio in any way.*
DO NOT allow children to operate the radio unsupervised.

ALWAYS charge your radio at normal room temperature.
ALWAYS switch off your radio where notices restrict the use of two-way radio or mobile telephones.
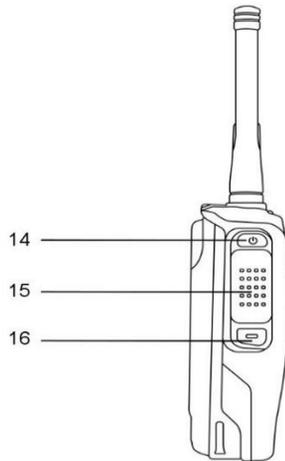*ALWAYS keep the antenna more than 25 mm from any part of the head or body when transmitting.*

NOTE People with pacemakers are recommended to maintain at least 20cm separation between the radio and their pacemaker.
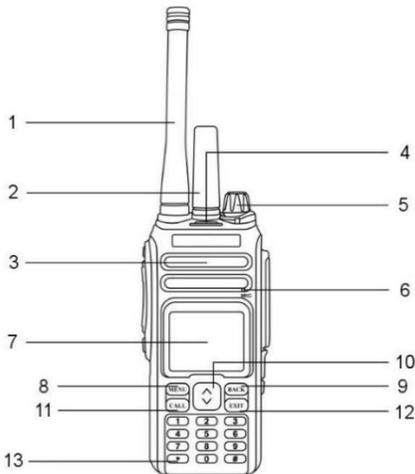
FRONT

1. Antenna 1 (UHF)
2. Antenna 2 (Cellular)
3. Speaker
4. Indicator Lamp
   - When first powered on: LED will flash blue while radio powers up and logs into account
   - Once logged into the network, blue flash will slow to once every 5 seconds (It can take up to 20 seconds to acquire a network)
   - LED will turn red when the PTT is pushed and radio transmits
   - LED will turn blue during receive
   - LED will turn red when radio is switched off until it is logged off the network
   - When the radio is switched off and a charger connected via micro USB port, the LED will turn red while charging
5. Power Switch and Volume Control
6. Microphone
7. LCD Indicator
8. Menu/Select Key;
   Displays the menu or selects menu function

LEFT

9. Back Key;
   Back to the previous menu or Cancel to stop the current operation
10. Up/Down Key;
    Up key, short press – chosen item in the menu or list moves up one line
    Down key, short press –chosen item in the menu or list moves down one line
11. Call key
    Broadcast to selected number
12. Exit
    Exit to the home screen
13. Numeric keypad
14. Squelch (Analog)-SOS Key (Network)
    Short press to toggle squelch open/closed
    Press for 3 seconds to send a broadcast SOS
    Press for 3 seconds to cancel broadcast SOS. (A red SOS will show on the top status line)
15. PTT (Push-to-Talk) Switch
16. Switch Mode Key
    Press to change between PoC and UHF
    Keypad lock
    Hold for 3 seconds to lock/unlock keypad
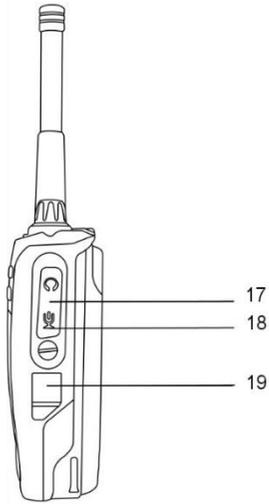
RIGHT

17. Speaker Jack
18. Microphone Jack
19. Micro USB charger jack
    Radio can be charged via a standard
    USB micro cable
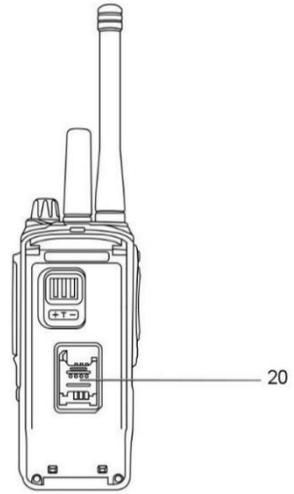
BACK

20. SIM Card Slot

Basic Settings

Power On

1. Turn on volume switch clockwise to power on, anti-clockwise for off
2. LCD will display blue login screen
3. LCD will display logging in (This can take up to 20 seconds), UHF information, the signal strength, network type, Text Message, GPS, time and battery capacity
4. Once logged in LCD will display system platform information

Power Off

Turn the volume switch anticlockwise to power off. The LED will illuminate red and the LCD will display "Power Off" during the shutting down process. This takes about 5 seconds.

Switch Modes

The radio can switch between two modes, Network and UHF mode. To switch modes press "Switch mode key" Ref. 16. Located on the left side of the radio.

Transmitting

Press the PTT and the LED will illuminate red indicating the radio is in transmit mode. When in the network mode, the LCD green status bar will indicate "my turn to talk".

Receiving

When the LED is illuminated blue. It indicates the radio is receiving a transmission. When in network mode the green status bar will indicate the broadcasters name or ident.

Quick Access

The numerical keys on the keypad can be used as quick access keys. While in either group select or user list, select desired group/user and long press desired numerical key to set as quick call access to that group or user. You will be notified by a "Defined" prompt.

Screen Display
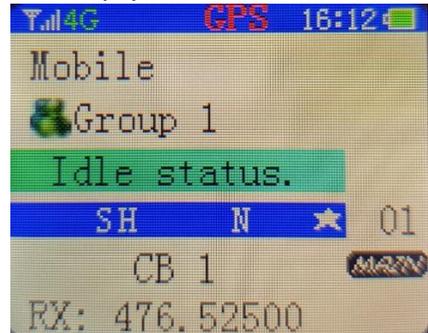
The TA-680 has a simultaneous dual screen of both modes; Network and UHF. The upper half is the Network mode with the green status bar. The lower half is the UHF mode with the blue status bar. The MAIN icon shows the current active selected mode.

UHF status bar

The radio has a blue status bar midway down the home display screen, this status bar notes key information regarding settings of the current channel that is selected.
The symbols that may be present in the status bar are as follows:

- 📶 Received signal strength
- **S** Power save mode
- **H** High transmission power (4W)
- **L** Low transmissions power (2W)
- **CTS** Continuous Tone-Coded Squelch System (CTCSS) enabled
- **DCS** Digital Coded Squelch enabled
- **D** Duplex mode
- **N** Narrow band (12.5kHz)
- **W** Wide band (25kHz)
- **B** Busy channel lock out
- ★ Scan group

A quick press of the # key is used to toggle between frequency display and channel number.
Note; In CB mode the radio must be in channel mode to transmit.

Settings

SOS (Network feature only)
The radio can have the SOS feature disabled/enabled. To access SOS settings.

1. Press 'MENU' key
2. Short press ▲ once, for "Settings", press 'MENU' key to select
3. Press 'MENU' key to select "SOS Mode"
4. Short press ▲ or ▼, to choose desired setting press 'MENU' key to save selection
5. Press 'BACK' key twice to return to home screen or press 'EXIT' key

Time Zone

The time the radio displays can be adjusted to suit your time zone. To access time zone settings.

1. Press 'MENU' key
2. Short press ▲ once, for "Settings", press 'MENU' key to select
3. Short press ▼ once, for "Time Zone", press 'MENU' key to select
4. Short press ▲ or ▼, to choose desired setting press 'MENU' key to save selection
5. Press 'BACK' key twice to return to home screen or press 'EXIT' key

Note; Time is acquired from the GPS and radio must first be used outside with to establish a GPS fix.

Keypad Lock

You can set automatic lock or manual lock, for the keypad of the radio.

1. Press the 'MENU' key
2. Short press ▲, for "Setting", press 'MENU' key to select
3. Short press ▲ three times, for "Autolock" press 'MENU' key to select
4. Short press ▲ or ▼, to change the option On/Off press 'MENU' key to save selection

5. Press 'BACK' key twice to return to home screen or press 'EXIT' key

When automatic lock is on, all keys other than the PTT and Squelch/SOS key will automatically lock after 10 seconds
Long press of the 'Switch mode' key on left side of the radio will temporarily unlock keys.

Keypad beep setting

This function can be set in "Setting" menu.
It can be set to:
On: beep sound emitted when a key press is operated
Off: No sound emitted with key press

Advanced Settings

MODE Selection
The radio has three different modes;
> Dual mode
> Analog only
> IP only (Network)

To access mode selection.

1. Press 'MENU' key
2. Short press ▼ three times, for "Advanced Settings", press 'MENU' key to select
3. Press 'MENU' key to select "Working Mode"
4. Short press ▲ or ▼, to choose desired setting press 'MENU' key to save selection
5. Press 'BACK' key twice to return to home screen or press 'EXIT' key

Note; While in certain modes some settings may not be accessible.

2

RX. Priority

The radio can give priority to receiving a broadcaster's signal. The priority can be set to Network, Analog, Dual or Sequential. In Sequential mode the radio will prioritize first transmission received.

1. Press 'MENU' key
2. Press ▼ three times, to choose "Advanced Setting" press 'MENU' key to select
3. Press ▼ three times, to choose "RX. Priority" press 'MENU' key to select
4. Short press ▲ or ▼, to choose desired setting press 'MENU' key to save
5. Press 'BACK' key twice to return to home screen or press 'EXIT' key

TX. Selection

The radio can automatically switch between modes based on last received signal. The priority can be set to manual or auto, in auto the radio will transmit on the last received mode (Network or UHF).

1. Press 'MENU' key
2. Short press ▼three times, to choose "Advanced Setting" press 'MENU' ley to select
3. Short press ▼twice, to choose "TX. Selection" press 'MENU' key to select
4. Short press ▲ or ▼, to choose desired setting press 'MENU' key to save selection
5. Press 'BACK' key twice to return to home screen or press 'EXIT' key

PTToC Settings

Group Switching

1. Press the 'MENU' key and then press 'MENU' key again to view/select "Choose Group". Short press ▲ or ▼, to choose desired group
2. Press the 'MENU' key to (Add) select desired group
3. The LCD display will now indicate the selected group for TX. and RX.

Note; Above feature is Programming dependent

Individual Call

There are multiple ways to create a temporary group and call individual users. One of the ways is via a friends list or via the user list of a group. Friends List method

1. Press 'MENU' key
2. Short press ▼, for "Friend List" press 'MENU' key to select
3. Short press ▲ or ▼, to choose desired user then press 'MENU' key to select
4. Press PTT to initiate communication

Note; you can only select users that are "on air" indicated by a blue colour icon.

User List method

1. Press 'MENU' key
2. Short press ▼ twice, for "User List" press 'MENU' key to select
3. Short press ▲ or ▼, to choose desired user press 'MENU' key to select
4. Press PTT to initiate communication
5. If the PTT is not pushed within 120 seconds, the radios will revert to the default group, if you change groups the temporary individual/group call will terminate and revert radios to default groups.

Note; you can only select users that are "on air" indicated by a blue colour icon.

Text Message

The radio can receive text messages. On receiving of a text message an icon (Envelope) will display in the top blue status line of the LCD.

1. Press 'MENU" key
2. Short press ▼ five times, for "Dispatcher MSG" press 'MENU' key to select
3. Short press ▲ or ▼, to choose desired text message press 'MENU' key to select/read message
4. Press the 'BACK' key to return to message list or press 'EXIT' key to return to home screen
5. Unread messages are identified by a closed envelope icon next to the message

Messages are limited to 20 characters. The radio will store the last 5 messages

Analog Settings

Duplex Mode - CB

The radio can be placed into duplex mode on channels 1 to 8 and 41 to 48

While on channels 1 to 8 or 41 to 48

Press and hold the # key on the keypad for 4 seconds until you will see a "D" appear on the blue status bar. This notes the current channel is in duplex mode and will transmit/receive 30 channels higher.

To stop duplex mode, select desired channel, press and hold the # key on the keypad for 4 seconds until you will see the "D" disappear on the blue status bar. This notes the current channel is not in duplex mode and will transmit/receive on the current channel. The display will show the receive frequency.

Roger Beep function

This function can be set in "Analog Setting" menu

On: A beep tone is emitted when the PTT is pressed or released indicating start or end of transmission

Off: No beep tone is emitted during PTT operation

Squelch

The radio audio can open at varying levels of received signal strength.

1. Press 'MENU' key
2. Short press ▼ four times, for "Analog Setting" press 'MENU' key to select
3. Short press ▲ seven times, for "SQL" press 'MENU' key to select
4. Short press ▲ or ▼, to select desired level, press 'MENU' key to save selection
5. Press 'BACK' key twice to return to home screen or press 'EXIT' key

BCLO

Busy Channel Lock Out is used to stop the use of the PTT if the radio is receiving a UHF transmission

1. Press 'MENU' key
2. Short press ▼ four times, for "Analog setting" , press 'MENU' key to select
3. Short press ▼ six times, for "BCLO", press 'MENU' key to select
4. Short press ▲ or ▼, to choose desired selection, press 'MENU' key to save selection
5. Press 'BACK' key twice to return to home screen or press 'EXIT' key

Scan

The radio can scan through selected channels looking for transmission on the channel, the scan will scan through channels inside the scan group. A star displayed in the blue status bar, notes if the current channel is in the scan group. To scan through the scan group press and hold the * key on the keypad for 2 seconds. Pressing the * key again will stop the scan and revert to original channel scan was commenced from.

If the radio stops on a busy channel, pushing the PTT will stop the radio from scanning

Add/Remove channels to scan group

Find a channel that is not in the scan group, noted by the star in the blue status bar

1. Press 'MENU' key
2. Short press ▼ four times, for "Analog Setting", press 'MENU' key to select
3. Short press ▲ three times, for "Scan. Add", press 'MENU' key to select
4. Short press ▲ or ▼, to change Add/Delete, press 'MENU' key to save desired selection
5. Press 'BACK' key twice to return to home screen or press 'EXIT' key

When you add the channel to the scan group a star will now be displayed in the blue status bar. This indicates current channel is in the scan group.

CTCSS

To activate Continuous Tone-Coded Squelch System, select desired channel.

1. Press 'MENU' key
2. Short press ▼ four times, for "Analog setting" , press 'MENU' key to select
3. Short press ▼three times, for "RX. CDC", or Short press ▼four times, for "TX. CDC", press 'MENU' key to select
4. Press the * key to select a CTCSS tone, DCS tone or "off"
5. Short press ▲ or ▼, to choose desired tone then press 'MENU' key to save

If you want to change between Analog and Digital or Off

1. Press and hold the * key on the keypad, choose desired selection, press 'MENU' key to save selection
2. Press 'BACK' key twice to return to home screen or press 'EXIT' key

The same procedure is used to select TX CTCSS or Digital coded tones.

Store Channel for Receive only

You can store any channel from 400MHz to 480MHz as a receive only channel in memory locations 121 to 199. These can also be added to the scan group.

UHF CB CHANNELS & FREQUENCIES

Legend		CH No.	Remark
Duplex Mode Receive	DRX	81 - 120	Commercial Pre-Programmable
Duplex Mode Transmit	DTX		
Emergency use only	E	121 - 199	User Programmable RX. Only
Receive Only	RX		
Inaccessible	X		

CH No.	Frequency (MHz)	CH No.	Frequency (MHz)
1. DRX	476.425	41. DRX	476.4375
2. DRX	476.450	42. DRX	476.4625
3. DRX	476.475	43. DRX	476.4875
4. DRX	476.500	44. DRX	476.5125
5. E, DRX	476.525	45. DRX	476.5375
6. DRX	476.550	46. DRX	476.5625
7. DRX	476.575	47. DRX	476.5875
8. DRX	476.600	48. DRX	476.6125
9	476.625	49	476.6375
10	476.650	50	476.6625
11	476.675	51	476.6875
12	476.700	52	476.7125
13	476.725	53	476.7375
14	476.750	54	476.7625
15	476.775	55	476.7875
16	476.800	56	476.8125
17	476.825	57	476.8375
18	476.850	58	476.8625
19	476.875	59	476.8875
20	476.900	60	476.9125
21	476.925	61. X	476.9375
22. RX	476.950	62. X	476.9625
23. RX	476.975	63. X	476.9875
24	477.000	64	477.0125
25	477.025	65	477.0375
26	477.050	66	477.0625
27	477.075	67	477.0875
28	477.100	68	477.1125
29	477.125	69	477.1375
30	477.150	70	477.1625
31. DTX	477.175	71. DTX	477.1875
32. DTX	477.200	72. DTX	477.2125
33. DTX	477.225	73. DTX	477.2375
34. DTX	477.250	74. DTX	477.2625
35. E, DTX	477.275	75. DTX	477.2875
36. DTX	477.300	76. DTX	477.3125
37. DTX	477.325	77. DTX	477.3375
38. DTX	477.350	78. DTX	477.3625
39	477.375	79	477.3875
40	477.400	80	477.4125

Specifications

Model Number:	TA-680
Dimensions:	135mm x 58mm x 38mm
Weight:	320g
Working temp:	-30°C to +75°C
Working Voltage:	6.2V ～ 8.25V (Standard 7.6V)
Working Current:	500mA @ LTE
	220mA @ WCDMA
	1500mA @ Analog UHF
Peak Current:	2 A
LTE FDD:	Band1:2100MHz, Band3:1800MHz, B7:2600MHz, B8:900MHz, B20:800MHz
WCDMA:	Band1:2100MHz, Band8:900Mhz
UHF:	400MHz - 470MHz
Maximum Output power:	LTE:23±2.7 dBm(Power Class 3)
	WCDMA:24 +1/-3dBm (Power Class 3)
	GSM900:33±2dBm (Power Class 4)
	GSM1800:30±2dBm (Power Class 1)
	UHF: <= 4W
Receiving Sensitivity:	LTE FDD ≤-100 dBm;
	WCDMA 900:≤-108 dBm;
	WCDMA 2100:≤-109 dBm;
	GSM900 /1800 : ≤-106 dBm;
	UHF : <= -122dbm @ 12db SINAD
GPS:	GPS Positioning, 1.57542GHz;
Sensitivity:	Catch -144dBm，Track -159dBm;
Data Speed Rate:	LTE FDD -Uplink 50 Mbps /Downlink 150 Mbps
	WCDMA -Uplink 5.76 Mbps /Downlink 42 Mbps
Protocol:	Support embedded TCP& UDP Protocols Support Protocols PAP and CHAP used for PPP connection 3GPP TS27.005,27.007
Band Width:	Wide / Narrow
Transmit Power:	5W
Modulation:	16KΦF3E / 11KΦF3E
Spurious Emissions:	≤-36dBm / ≤-36dBm
Adjacent Channel Power:	≥70dB / ≥60dB
(12db SINAD):	0.20μV / o.20μV
Adjacent Channel Selectivity:	≥60dB / ≥55dB
Intermodulation Rejection:	≥65dB / ≥60dB
Spurious Response:	≥65dB / ≥65dB

Warranty

This warranty against defects is given by Tooo Air Pty. Ltd. ABN 58 615 252 536

1. **Consumer Guarantees**

    1.1. Our goods come with guarantees that cannot be excluded under the Australian consumer law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

    1.2. To the extent we are able, we exclude all other conditions, warranties and obligations that would otherwise be implied.

2. **Warranty Against Defects**

    2.1. This warranty is in addition to and does not limit, exclude or restrict your rights under the Competition and Consumer Act 2010 (Australia) or any other mandatory protection laws that may apply.

    2.2. We warrant our goods to be free from defects in materials and workmanship for the warranty period of 12 months from the date of original sale. Subject too our obligations under clause 1.2, we will at our option, repair or replace goods which we are satisfied are defective. We warrant any replacement parts for the remainder of the period of warranty for the goods into which they are incorporated.

Product Type Warranty

2.3. To the extent permitted by law, our sole liability for breach of a condition, warranty or other obligation implied by law is limited

    (a) In the case of goods we supply, to any one of the following as we decide:
        (i)   The replacement of the goods or the supply of equivalent goods;
        (ii) The repair of the goods;
        (iii) The cost of repairing the goods or of acquiring equivalent goods;

    (b) In the case of services we supply, to any one of the following as we decide:
        (i)   The supplying of the services again;
        (ii) The cost of having the services supplied again

2.4. For repairs outside the warranty period, we warrant out repairs to be free from defects in materials and workmanship for three months from the date of the original repair. We agree to re-repair or replace (at our option) any materials or workmanship which we are satisfied are defective.

2.5. We warrant that we will perform services with reasonable care and skill, we agree to investigate any complaint regarding our services made in good faith. If we are satisfied that the complaint is justified, and as our sole liability to you under this warranty (to the extent permitted by law), we agree to supply those services again at no extra charge to you.

2.6. To make a warranty claim you must before the end of the applicable warranty period, return the goods you allege are defective, provide written details of the defect, and give us an original or copy of the sales invoice or some other evidence showing details of the transaction.

2.7. Send your claim to:

Tooo Air Pty. Ltd.
Suite 1103,
1 Newland Street
Bondi Junction NSW 2022
Tel: (02) 9157 0540
Email: info@toooair.com.au

Warranty Cover
This warranty will not apply in relation to:

(a) Goods modified or altered in any way;
(b) Repairs performed other than by our authorised representative;
(c) Defects or damage resulting from misuse, accident, impact or neglect;
(d) Goods improperly installed or used in a manner contrary to the relevant instruction manual; or
(e) Goods where the serial number has been removed or made illegal

3.   Warranty Period
The warranty on the ToooAir TA-680 Wide Area IP 2 Way Radio is 12 months and the Battery is 4 months. No repair or replacement during the warranty period will renew or extend the warranty period past the period from the original date of purchase.

Important Notice

ACMA Standard

The use of the Citizen Band radio service is licensed in Australia by the ACMA Radio communications (Citizens Band Radio Stations) Class Licence and in New Zealand by the Ministry of Economic Development (MED) General User Radio Licence (GURL) for Citizens Band Radio, and operation is subject to conditions contained in those licences.

In Australia there are numerous repeater sites that input/receive channels for long distance communication between sites. The repeaters work by taking input on channels 31 to 38 and 71 to 78, and re-broadcast the signal on channels 1 to 8 and 41 to 48, to extend the range of the communication. While operating in Australia certain transmissions must meet the ACMA standard they are as follows:

- CB transmitter shall not be operated on UHF emergency channels 5 and 35.
- No voice transmission is permitted on data (telemetry/telecommand) channels 22 and 23.
- Before transmitting on a channel always listen in on the channel selected to ensure it is not already being used before transmitting.
- Avoid operation on locally used repeater input channels 31 to 38 and channels 71 to 78 or locally used repeater receiving channels 1 to 8 and channels 41 to 48, unless long-distance communication via the repeater facility is specifically required.
- Transmissions on channels 61 to 63 are inhibited and are reserved for future allocation.

The TA-680 meets the ACMA standard and will inhibit voice operation on channels 22 and 23 and inhibit all operations on channels 61 to 63.

In the event that additional telemetry/telecommand channels are approved by the ACMA, these channels shall be added to those currently listed where voice transmission is inhibited.

The TA-680 operates on narrowband (2.5 kHz deviation) 12.5 kHz channel spacing. This can lead to potential operational issues with older equipment still operating on wideband (5.0 kHz deviation) 25 kHz channel spacing. The original 40 channels were designed for wideband channel spacing and with the new technology narrowband channel spacing has halved the channel spacing which is how we now have 80 channels. Older equipment still operating on wideband will only operate on original 40 channels and could potentially interfere with narrowband 41 to 80 channels which sit inside the original 40 channel band. Due to the deviation differences between the two channel spacings narrowband and wideband there will be volume differences of the communication between the old equipment and the new equipment. A list of currently authorized channels can be obtained from the ACMA website in Australia and the MED website in New Zealand.

ToooAir

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